

Cryo Control Panel (CCP)

- ▶ List of devices on Confluence page:

<https://confluence.its.virginia.edu/display/twist/Slow+Controls#SlowControls-CryoControlPanel:CCP>

- ▶ Conditions of devices & VIs expected for the FNAL review in early April

- ▶ VIs on GitHub repository:

https://github.com/uva-spin/e1039-target-controls/tree/devel_cryo_control_panel/Cryo-Control

- ▶ Updates

- ▶ Added basic functions to the Fridge Valve VIs
- ▶ Connected two more sensors to MaxiGauge
 - ⇒ Will test standalone VIs (by Zulkaida)

- ▶ Plans

- ▶ Set up all sensors and VIs that are expected for the FNAL review

Run Valve & Bypass Valve

- ▶ Control box @ slow-control rack
 - ▷ Motor drivers (AM ST5-S)
 - ▷▷ For run valve:
Connected to a motor in the cave
 - ▷▷ For bypass valve:
Not connected (for response test)
 - ▷ ADC (MCC USB-202)
 - ▷▷ Not connected to potentiometer
 - ▷ All are responding to Serial/USB commands properly

See ORC for details



- ▶ **CCP sub panel:**
Cryo-Control/Fridge_Valve/Fridge_Valve_Main.vi
 - ▷ Screenshot in next page
 - ▷ The He level was included because it will be auto-controlled using the run-valve position
- ▶ **Relation between motor steps, motor turns & valve opening**
 - ▷ Motor move resolution \equiv 200 steps per turn
 - ▷ Motor move: 0-3 turns \iff Valve opening: 0-100%
 - ▷ ADC potentiometer reading: 0-5 V \iff Valve opening: 0-100%
 - ▷ Just assumption for now. To be updated once the hardware setting is fixed
- ▶ **Implemented VI functions**
 - ▷ Initialize the motor parameters
 - ▷▷ Measure the valve position with ADC to locate the absolute motor position (i.e. N of turns) **only once when VI starts**
 - ▷ Enable/disable the motor power
 - ▷ Set the positions of run valve and bypass valve **manually**
 - ▷▷ Use the absolute motor position to control the valve opening
 - ▷ Read the ADC value continuously for crosscheck (because the driver does not always warn mis-moves)

File Edit View Project Operate Tools Window Help

Fridge Valve Panel

Last Updated: 2022-03-29 22:29:08

Stop Pause

Level Probe Status

R.V. Motor Status

B.V. Motor Status

ADC Status

Enable Advanced Controls

AMI1700 R.V. VISA B.V. VISA

Automated Run-Valve OFF Control

R.V. Motor Power B.V. Motor Power

R.V. Init Step: 168 B.V. Init Step: 138

He Level

Run Valve Opening
 Set Opening: 33.0183 Motor Step: 0 ADC: 1.75092

Bypass Valve Opening
 Set Opening: 32.9206 Motor Step: 0 ADC: 1.75092

main.lvproj/My Computer

CCP Main Panel

